

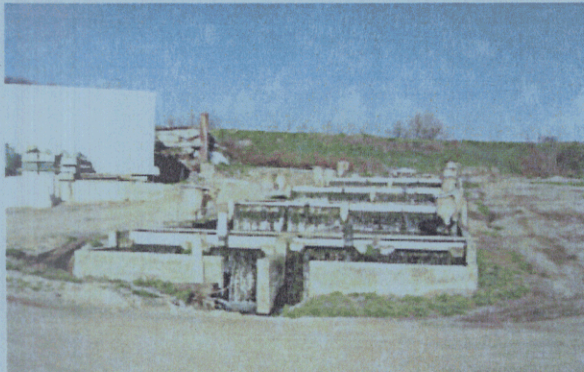
Idaho Geothermal Energy Development Strategic Plan



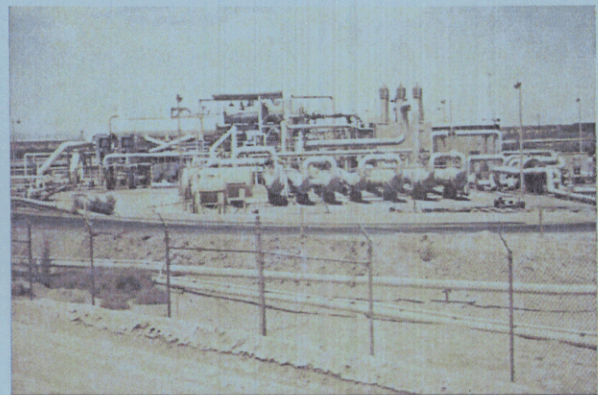
Greenhouse



District Heating



Aquaculture



Power Generation

Sponsored by the
Idaho Geothermal Energy Working Group



Idaho Department of Water Resources
Energy Division

October, 2002

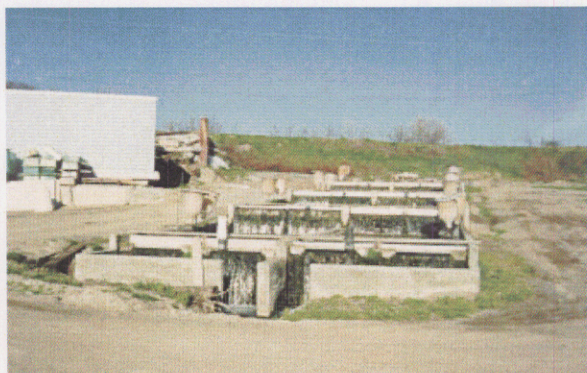
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Idaho Department of Water Resources
Energy Division

October, 2002

Idaho Geothermal Energy Development Strategic Plan

for the

Idaho Geothermal Energy Working Group

Prepared by the

Geothermal Energy Ad Hoc Steering Committee



**Idaho Department of Water Resources
Energy Division
1301 North Orchard St.
Boise, Idaho 83706**

October, 2002

Idaho Geothermal Energy Working Group

Geothermal Energy Ad Hoc Steering Committee

Gerry Galinato, Idaho Energy Division
Ken Neely, Idaho Department of Water Resources
Bob Neilson, Idaho National Engineering and Environmental Lab
Roy Mink/Julie Scanlin, Idaho Water Resource Research Institute
Leo Ray, Fish Breeders of Idaho
Janet Richardson, Lost River Geothermal Co.
Steve Munson, Vulcan Power Co.
Curtis Framel, U.S. Department of Energy, Seattle Regional Office
Kent Johnson, City of Boise Public Works
Gary Fornshell, UI Cooperative Extension System
Bill Lewis/Marshal Ralph, Power Engineers
Peter Anderson, Kootenai Rural Electric Cooperative
Ken Burgess, Senator Larry Craig's Office
Jay Kunze, College of Engineering, Idaho State University
Bud Tracy, Idaho Cooperative Utilities Association
Rick Keller/Russ Hendricks, Idaho Farm Bureau
Bill Eastlake, Idaho Public Utilities Commission
Jackie Lemieux, TechHelp™, Boise State University (Facilitator)

PREFACE

The purpose of the Idaho Geothermal Energy Development Strategic Plan document is to provide brief background and current status on geothermal energy development in Idaho and a framework for accomplishing the mission, goals, and strategic objectives of the Idaho Geothermal Energy Working Group. It has been divided into two major parts, namely: Part I – Background, and Part II – Strategic Plan.

IDAHO GEOTHERMAL ENERGY DEVELOPMENT STRATEGIC PLAN

Table of Contents

	Page
PART I Background.....	1
Introduction	1
GeoPowering the West	2
National Geothermal Coordinating Committee.....	2
Formation of the Idaho Geothermal Energy Working Group.....	2
Overview of Geothermal Energy Uses in Idaho	3
Idaho's Geothermal Energy Efforts.....	4
Needs and Barriers in Geothermal Energy Development in Idaho.....	5
PART II Strategic Plan.....	7
Mission Statement	7
Strategies and Action Plans	7
Appendices	
A. Idaho Geothermal Resource Map.....	11
B. Governor's Proclamation: Idaho Geothermal Energy Awareness Month	13
C. List of Invited Member Organizations and Representatives	15
D. Summary of Meeting Notes, Idaho Geothermal Energy Working Group Meeting, June 1, 2001.....	17

IDAHO GEOTHERMAL ENERGY DEVELOPMENT STRATEGIC PLAN

PART I. BACKGROUND

Introduction

In the mid-1980s to early 2000, natural gas supplies were plentiful and relatively inexpensive. Hydropower generation was low cost as well because of abundant water in the reservoirs in the state. In addition, electric power supplied by the Bonneville Power Administration and from coal-fired plants imported from neighboring states was relatively cheap. This all changed in late 2000 when the prices of almost all forms of energy began to skyrocket.

Demand for energy in Idaho kept increasing. There were several reasons for this. More people were moving into the state and industrial growth took an upswing. Residents began to use more and more electricity for cell phones, computers and other appliances. Electric demand for new industries and conversion to sprinkler systems also contributed to increased need for energy. At the same time, the snowpacks in the mountains were well below normal, and in 2001 the state experienced one of the worst droughts in many years.

Although there has been a great deal of development of geothermal in Idaho, considering its small population and large land mass, the potential for further use of this resource is very great. Development of geothermal energy resources for various types of applications has a positive impact to the economy of Idaho communities.

Idaho has used its abundant geothermal resources (see Appendix A, Idaho Geothermal Resource Map) for years. However, assessment and development of the resource and related data collection and analysis basically stalled in the mid-1980s. The current database, collected from various sources, is fragmented and incomplete, with a time gap between the 1980s and the 1990s. The latest data base was updated by the Idaho Water Resource Research Institute in 1994.

The database does not contain complete data on some of the identified sources and is not suitable in its present state to Internet use. It also does not lend itself to GIS integration or detailed queries.

Neither the state nor the federal government has adequately funded the investigation and use of this resource in the West for a number of reasons. The time has come for government to work with industry, not only to further study these resources, but also to implement projects that use geothermal energy. The data collected should then be readily available on the Internet.

GeoPowering the West

The purpose of this federal initiative is to increase geothermal energy usage in the Western United States, which has abundant geothermal resources. These uses include both electrical production and the utilization of lower temperature resources for residential and commercial heating and various industrial applications.

If these two general goals are met, by 2020 approximately 10 percent of the power used in the West would be generated by geothermal resources. Seven million homes would use this energy, and eight states would have geothermal power generation facilities, up from the present four.

California already generates 2,500 MW from geothermal; Nevada, 200 MW; Utah, 40 MW; and Hawaii 30 MW. These four states also have the most potential to increase electric power generation from geothermal, followed by Idaho, New Mexico, Arizona, Oregon, Colorado, and others.

The benefits of such developments are tremendous. Western landowners would receive an estimated \$500 million in additional income over 20 years, and 20 million tons of carbon would be displaced from the atmosphere. Over that same time span, \$50 billion would be invested in the West.

To meet the goals of the initiative, the vast geothermal resources of the West need to be better defined. New sites must be developed, uses of existing reservoirs expanded, and small-scale distributed power resources tapped. Additional efforts must be made to strengthen the development of technology and to develop innovative uses of low-temperature resources.

The National Geothermal Coordinating Committee

To support the GeoPowering the West Program, the U.S. Department of Energy is planning to organize a National Geothermal Coordinating Committee, which will be managed by a private organization. The committee will be drawn from broad interests and comprised of representatives from various federal and state government agencies, geothermal developers, consultants, industries and other stakeholders. The national committee will facilitate the development of geothermal energy in the U.S. and help implement the goals of the GeoPowering the West initiative.

Formation of the Idaho Geothermal Energy Working Group

The Idaho Geothermal Energy Stakeholders Workshop hosted by Senator Larry Craig and sponsored by the Idaho National Engineering and Environmental Lab, Idaho Energy Division and others was held on May 31, 2001 at Boise State University. Idaho Governor Dirk Kempthorne also proclaimed June 2001 to be Idaho Geothermal Awareness Month (see Appendix B). Following that workshop a group of interested participants met to discuss the formation of an Idaho Geothermal Energy Working

Group. In this meeting the participants agreed to form a working group to help facilitate the continued development of geothermal energy resources in Idaho for various applications. The participants believe that geothermal energy technology can help meet future energy needs and offers potential rural and urban economic development opportunities. It was decided to form an ad hoc steering committee comprised of representatives from key organizations interested in the development of geothermal energy projects in Idaho. The primary task of the steering committee was to review the needs and barriers involved in the continued development of geothermal energy resources for various applications and to draft a strategic action plan. This plan would be presented to the Idaho Geothermal Energy Working Group which would further review the plan and help implement the various action items. It was also agreed to expand the composition of the working group (see Appendix B).

Overview of Geothermal Energy Use in Idaho

The Gem State is no latecomer to the use of geothermal resources. Indians and trappers enjoyed the warm waters long before the area became a territory. When the settlers came to Boise, they built a distribution system to heat homes some distance from the source. Warm Springs Avenue gets its name from the geothermal waters and is still the heart of the Boise Warm Springs Water District. Established in the 1890s, this district heating system is the oldest and largest in the U.S.

It is not, however, the only hot water district heating system in Boise. The city of Boise also has a geothermal space heating system that serves downtown businesses. At one time the city system was discharged into the Boise River via diffuser pipes near Americana Boulevard. However, this practice was discontinued in 1999, and the water is now reinjected underground.

The state of Idaho built its geothermal system in the 1980s to heat the Capitol Mall complex near downtown Boise. It was the first geothermal system in Boise to reinject the spent water. Still another system serves some of the federal buildings of the Veterans' Administration. Boise is not the only city in Idaho to tap into the vast geothermal resource. In Twin Falls, another geothermal system heats the College of Southern Idaho campus. The city of Ketchum also has a geothermal district heating system.

In addition to these district heating systems, geothermal water in Boise, Garden Valley, Arco, Hagerman Valley, Lava Hot Springs and in other cities heats homes, greenhouses, and spas. Prime catfish and alligators are also raised in the warm waters in the Magic Valley. Many resorts using natural hot springs are favorite spots for vacationers.

Power production from geothermal has been studied in Idaho in the past. Raft River, Magic Hot Springs, Big Creek, Crane Creek and Vulcan Hot Springs have been identified as having good potential for generating electricity, because of the higher water temperatures at these sites. In the early 1970s, the U.S. Department of Energy

explored the development of a binary power plant at Raft River. A 5 MW pilot plant was constructed and operated for a short time. The property was eventually sold as federal interest in the project declined.

To date there are no commercial geothermal power generating facilities in Idaho or in the Pacific Northwest region.

Idaho's Geothermal Energy Development Efforts

Currently there are two state incentives that promote the development and utilization of small-scale geothermal energy resources: a) Low-interest loans for renewable energy resources, and b) Idaho income tax deductions.

The Idaho Energy Division administers a low-interest loan program to finance the development of energy conservation measures or energy generation facilities that utilize renewable energy resources, including geothermal energy. The loans are offered at four percent interest rate and must be repaid in five years. The program provides residential loans from \$1,000 to \$10,000 and up to \$100,000 for other sectors. To be eligible for financing, the geothermal energy projects must have a 10 year payback. For new projects, geothermal energy must be the least cost alternative. In both cases, the project must be owned and operated by the applicant and be located in Idaho.

Idaho has allowed an individual income tax deduction for alternative energy devices installed in a home built prior to 1976. Qualifying devices include any system using geothermal, wind or solar energy, primarily to provide heating and cooling, to produce electrical energy or any combination of these. The entire cost (100%) of the residential geothermal energy system can be deducted from the taxable income up to a maximum of \$20,000. Forty percent of the total cost to construct and install the geothermal system can be deducted in the year the device was put to service, and 20 percent for the next three years. However, the deduction cannot exceed \$5,000 in any tax year.

The state, through the Idaho Energy Division, applied for a \$75,000 grant from the U.S. Department of Energy under its State Energy Program Special Projects for geothermal resource assessment. In the first phase the Department of Water Resources and the Idaho Water Resources Research Institute would update the database in Dbase format, and migrate it into Microsoft Access®. These agencies would develop and provide Internet access to this geothermal resources' database and generate electronic plot files for use in producing maps as needed.

As part of the project, they would assess Idaho's potential for geothermal power production. They would also evaluate the potential for new district heating and other direct use projects in the state.

In the second phase, contingent upon further funding, feasibility studies will be initiated on power plant, district heating and direct use applications, based on the sites identified in Phase One.

Needs and Barriers in Geothermal Energy Development in Idaho

At the May 31 stakeholders' workshop and the meeting the following day, participants interested in forming a geothermal working group identified various needs and barriers facing the development and use of geothermal energy resources. These were grouped into three categories including: a) direct use applications, b) electric power markets, and, c) power and direct use applications.

- **Direct-use Applications Needs and Barriers**

- Need for education and outreach to users on efficient and alternative uses of geothermal resources, such as aquaculture (e.g. tropical fish), greenhouses (e.g. flower productions, seeds), home and building heating and crop drying.

- Need to fund training and education on geothermal direct use to change aquaculture genetic issues including warm species genetic pool research. A geothermal well at the UI Hagerman Aquaculture Research Station is needed for education and research. This can also be done at Raft River using the Raft River geothermal wells.

- Some ground water resources are fully appropriated.

- Inability to expand or develop new geothermal resources due to moratorium in critical groundwater areas. Better understanding of the geothermal reservoir capacity and use of more conservation could allow greater use of the resource.

- Need to better assess geothermal resources using new techniques, geologic, geophysical and geochemical models, and new drilling technology.

- Not a long enough track record on geothermal production so financing industry is skeptical and reluctant to risk funding geothermal energy projects.

- **Electric Power Markets Needs and Barriers**

- Inability to get long-term power sales contracts.

- A complex, long, and difficult permitting process, 31+ permits per power plant, Federal and State.

- Federal leasing in Known Geothermal Resource Areas (KGRAs) and the inability to process leases expeditiously.

--Need for increased investment in technology. For example, there is a need for imagery for seismic geophysics, including electromagnetic, to accurately detect geothermal fractures and rock strata, and develop other innovative techniques.

--High cost of development.

--Transmission constraints.

--Underground uncertainty and drilling risks.

- **Direct Use Applications and Power Generation Needs and Barriers**

--Lack of data and understanding on existing resources to support additional development.

--Need for funds to conduct resource assessments.

--Need to update existing databases.

--Need more geothermal energy technology transfer.

PART II. STRATEGIC PLAN

Mission Statement

The mission of the Idaho Geothermal Energy Working Group is:

“To continue Idaho leadership in innovative development and effective utilization of the state’s geothermal heat resources for direct use, power generation and cascading applications.”

Strategies and Action Plans

In order to provide a framework for guiding the continued development of geothermal resources in Idaho for various types of applications, specific strategies and action plans had to be developed. The strategies must be in concert with the stated mission of the group.

In developing the strategies and action plans, it is important to address the various issues, needs and barriers to continued and widespread use of geothermal energy resources and technologies. To enhance and sustain the development of geothermal energy resources in Idaho, these barriers, both real and perceived, must be overcome.

The following strategies and action plans were developed based on the concerns, issues, needs and barriers discussed previously, and the various commitments that the members agreed to in the Memorandum of Understanding. Idaho’s strategies are also within the context of the National GeoPowering the West Program.

Strategic Objective 1: Educate the stakeholders and increase public awareness of Idaho's geothermal energy resource, rules, laws, benefits and cost-effective applications.

Action Plan:

- a. Institute, sponsor and/or coordinate educational programs, and activities (e.g., workshops, symposiums, etc.) to promote the uses of geothermal energy (e.g., space and water heating, greenhousing, aquaculture, industrial process, power production) to various groups, including: financial, stakeholders, etc. Activities may include: identify groups/players, target audience and let them know what the working group is doing, catalog resources, outreach.
- b. Identify and network to coordinate with the georesource centers (e.g., OIT Geothermal Education Office, INEEL, NREL, IWRRI) in developing educational programs at all levels for farmers, teachers and other related groups.

- c. Support and assist the UI Cooperative Extension System and the Idaho Water Resource Research Institute in developing an active and effective Geothermal Extension Program.
- d. Develop and make available a "one-stop shopping" document for those interested in developing and using geothermal resources for direct-use applications.
- e. Disseminate information to interested parties and potential users.
- f. Educate community leaders in the use of geothermal energy which could revitalize rural communities.

Strategic Objective 2: Organize an Idaho Geothermal Energy Working Group and Implement a Strategic Plan.

Action Plan:

- a. Organize an Idaho Geothermal Energy Working Group to review, adopt, and implement the Idaho Geothermal Energy Development Strategic Plan.
- b. Organize and conduct regular working group meetings to review progress of the Strategic Action Plan.
- c. Maintain Strategic Plan, review and modify every 2 years.

Strategic Objective 3: Promote water policies that encourage the use and development of geothermal energy.

Action Plan:

- a. Utilize expertise from the Idaho Department of Water Resources to clarify rules and regulations of use to geothermal energy.
- b. Identify water policies that are a barrier to geothermal development.
- c. Formulate, propose, and promote changes to water policies.

Strategic Objective 4: Promote the establishment of laws, legislation, and policies that encourage the development of geothermal energy for direct use, power generation and cascading applications.

Action Plan:

- a. Identify organizations to promote the drafting of legislation, which may include renewable portfolio standards, set asides, system benefit charge, tax credit, and production tax credit.
- b. Provide technical support to those involved in drafting legislation.
- c. Educate appropriate legislative committees and others influencing energy policies.

- d. Work with the Idaho Public Utilities Commission to promulgate rules promoting: 1) development of, and 2) purchase of geothermal energy and/or heat resource.
- e. Explore for possible links with new farm bill to support direct use applications in agriculture.
- f. Work with Idaho congressional delegation on policy, legislation and law to promote development of geothermal heat resources for direct use, power generation and cascading applications.

Strategic Objective 5: Increase technical knowledge and understanding of Idaho's geothermal resources and their uses.

Action Plan:

- a. Promote geothermal energy resource assessments in promising areas.
- b. Promote efforts to improve and update existing geothermal resource databases and maps.
- c. Encourage the water level monitoring and production data collection efforts in areas with current moratoriums to help decision-makers decide whether or not to possibly lift such moratoriums.
- d. Establish a technical geothermal committee involving the state, universities, federal institutions and private industries to collaborate research programs.
- e. Assess the establishment of a Geothermal Energy Research Center (i.e., in conjunction with the IWRRI).

Strategic Objective 6: Promote financial assistance for geothermal energy projects.

Action Plan:

- a. Compile and disseminate information on available government financial assistance and laws.
- b. Investigate ways to change perception of risks to financing geothermal applications.
- c. Analyze alternative financial assistance programs such as:
 - State and federal production tax credit programs.
 - Federal and state cost-share programs.
 - Low-cost loans available to rural electric cooperatives.
- d. Coordinate with the Idaho Department of Commerce, Regional Economic Development Districts and others in conducting studies that document the rural economic impacts of developing geothermal energy resources for direct use and power generation.

Strategic Objective 7: Promote innovative and broader use of geothermal energy.

Action Plan:

- a. Identify other innovative uses of geothermal energy such as:
 - Geothermal greenhouses to grow native plants/seeds for replanting programs.
 - Study the growth of certain plant species to “process” wastewater using aquaculture plants.
 - Study the feasibility of selling fingerlings for full production.

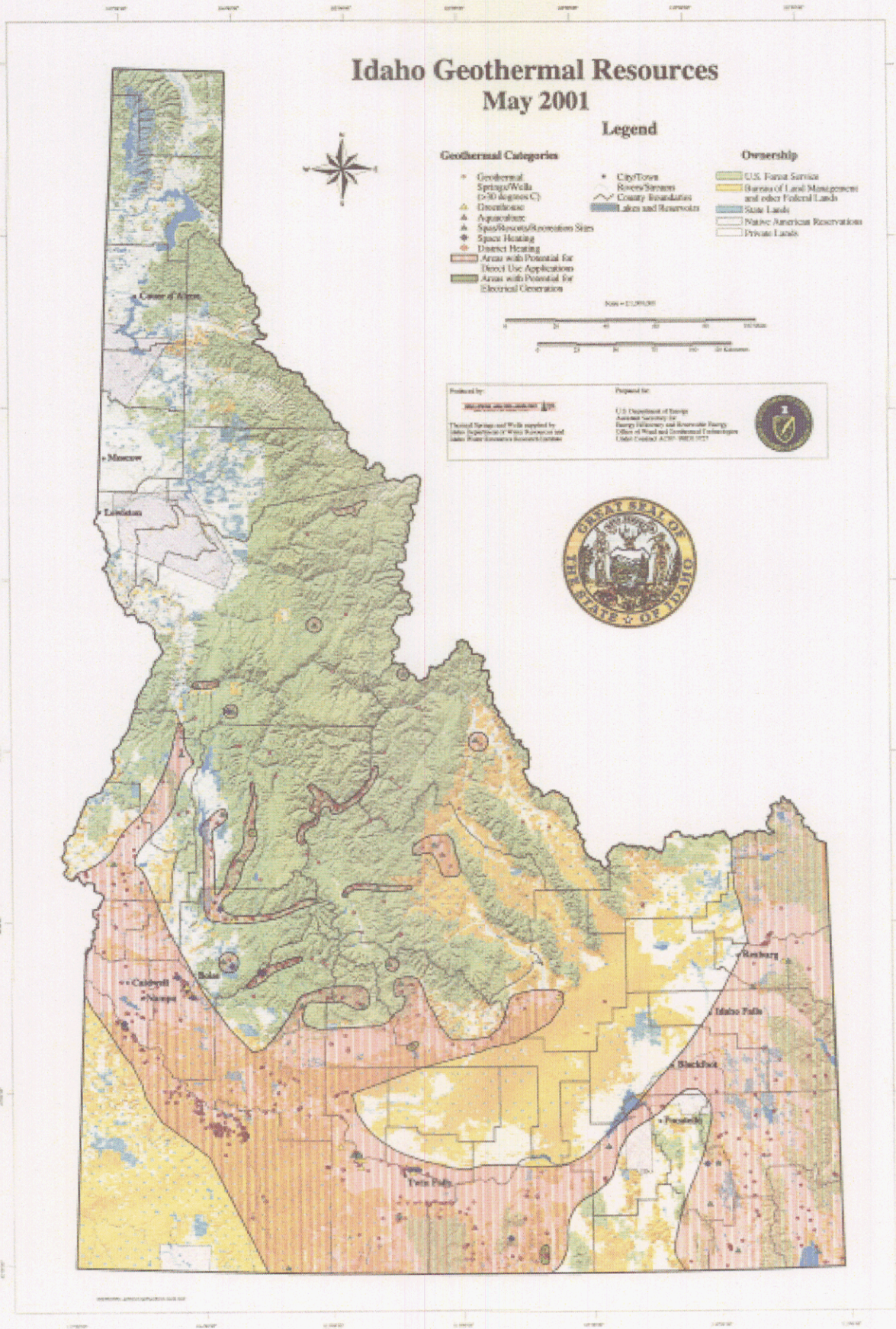
Strategic Objective 8: Promote opportunities for geothermal electric power development.

Action Plan:

- a. Identify and characterize resources suitable for geothermal electric development.
- b. Provide resource information to potential developers.
- c. Provide information needed for resource development, acquisition of financing, etc.
- d. Explore opportunities in geothermal electric with rural electric cooperatives in areas where appropriate resources exist.
- e. Identify geographical locations where geothermal production and use are more promising.

APPENDIX A

IDAHO GEOTHERMAL RESOURCE MAP



APPENDIX B

GOVERNOR'S PROCLAMATION: IDAHO GEOTHERMAL AWARENESS MONTH



Executive Department
State of Idaho

The Office of the
Governor
Proclamation

State Capitol
Boise

WHEREAS, Idaho has been blessed with an abundant geothermal resource that provides heating and energy for residential, commercial and industrial applications; and

WHEREAS, Idaho farmers, commercial greenhouse and nurseries facilities, ranches, recreational activities, government and industry can and do benefit from the use of geothermal resources and technologies; and

WHEREAS, Idaho has a nationally recognized history of innovative geothermal resource development, including the world's first geothermal residential heating district and extensive geothermal heating of many public buildings; and

WHEREAS, the development of geothermal energy production technology in Idaho is a continuation of Idaho's strong commitment to environmentally sound energy development and part of a coordinated geothermal partnership with the U.S. Department of Energy and the Idaho National Engineering and Environmental Laboratory designed to foster a sustainable energy future; and

WHEREAS, Idaho state government, utilities, private sector companies and consumers have strongly supported the continued development and use of geothermal and other renewable energy technologies;

NOW, THEREFORE, I, DIRK KEMPTHORNE, Governor of the State of Idaho, do hereby proclaim June 2001 to be

IDAHO GEOTHERMAL AWARENESS MONTH

in Idaho, and I encourage all Idahoans to learn more about geothermal energy and how it can be incorporated into their lives and businesses to provide an environmentally friendly, renewable source of energy to help power Idaho's future



IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Idaho at the Capitol in Boise on this fifth day of May in the year of our Lord two-thousand and one and of the Independence of the United States of America the two hundred twenty-fourth and of the Statehood of Idaho the one hundred tenth.


DIRK KEMPTHORNE
GOVERNOR


PETE T. CENARRUSA
SECRETARY OF STATE

APPENDIX C

**LIST OF INVITED MEMBER ORGANIZATIONS
AND REPRESENTATIVES**

**List of Invited Member Organizations and Representatives
Idaho Geothermal Energy Working Group
October 2002**

<u>Organization</u>	<u>Representative(s) And/or Alternate</u>
Idaho Office of the Governor	Erika Meadows
Idaho Department of Water Resources: Energy Division	Gerry Galinato Warren Weihing
Water Planning	Ken Neely
Water Management	John Carlson
Idaho Water Resources Research Institute	Dr. Roy Mink Julie Scanlin
Idaho National Engineering and Environmental Laboratory	Bob Neilson
Vulcan Power	Steve Munson
U.S. Department of Energy	Curtis Framel
Power Engineers	Bill Lewis Marshall Ralph
Sandia National Laboratory	Roger Hill
Senator Larry Craig's Office	Ken Burgess
City of Boise Public Works	Kent Johnson
Robison/Seidler, Inc.	George McCorkell
Patterson Grant & Watson	Dutch Van Blaricom
Bureau of Land Management	Jack Peterson
Idaho Department of Commerce	Jan Blickenstaff
Idaho Department of Agriculture	Rick Carlson
National Resource and Conservation Service	Jan Tuma
Idaho Farm Bureau	Rick Keller Russ Hendricks
UI Cooperative Extension System	Gary Fornshell
Idaho Rural Electric Cooperative Association	Peter Anderson
Kootenai Rural electric Cooperative	Bud Tracy
Idaho Electric Utilities (Idaho Cooperative Utilities Association)	
Aquaculture Industry	Janet Richardson
Lost River Geothermal Co.	Leo Ray
Fish Breeders of Idaho	Garnette Monnie
Greenhouse Industry	Kevin Rafferty
Oregon Institute of Technology	Gordon Bloomquist
Washington State University Energy Extension	Jay Kunze
Idaho State University, College of Engineering	Doug Glaspey
U.S. Geothermal, Inc.	Bill Eastlake
Idaho Public Utilities Commission	

APPENDIX D

SUMMARY OF MEETING NOTES

**IDAHO GEOTHERMAL ENERGY
WORKING GROUP MEETING
June 1, 2001**

Idaho Geothermal Energy Working Group Meeting
June 1, 2001
8:00 – 11:45 AM

The Idaho Geothermal Energy Working Group meeting began with a panel representing DOE-HQ (Peter Goldman), DOE-Seattle Regional Office (Kathy Pierce and Curtis Framel), and the Idaho Energy Division (Gerry Galinato).

Kathy Pierce welcomed attendees to the first Idaho Geothermal Energy Working Group meeting and asked each of the attendees to briefly introduce themselves. She also mentioned that attendees may want to request to be included on the electronic mailing list for the “Solicitations” listing that DOE-SRO maintains and distributes. Anyone interested in being added to this distribution list should send a request with their e-mail address to laurie.brown@ee.doe.gov.

Peter Goldman then made some introductory comments concerning the purpose of the Idaho Geothermal Energy Working Group meeting and DOE-HQ’s interest in this meeting. Specifically, he wants to see a dialogue initiated between people in Idaho who are interested in the development and use of geothermal energy. He hoped that this dialogue would help to identify barriers that are impeding geothermal development and form the basis for actions that could help remove these barriers. He also indicated that he intends to form a National Geothermal Coordinating Committee, along the lines of the existing National Wind Coordinating Committee, to assist in these state efforts.

Curtis Framel made a short presentation that started with a description of the current energy crisis in the western United States (drought, transmission issues, demand exceeding supply, etc.). This, with Idaho geothermal resources as described the previous day, provided a context showing that geothermal energy can be an important part of the solution. This was the purpose of the previous day’s workshop and the current Working Group meeting. He recognized some of the challenges that exist (use of public land, market uncertainties, siting issues), but stated that the current energy situation provides a “window of opportunity.” He used the Idaho Energy Division’s responsiveness to the 1997 “Million Solar Roofs” initiative as an example of how he hoped they could help lead the state in fostering geothermal energy development.

Gerry Galinato recognized that today (June 1st) was the first day of Idaho Geothermal Awareness Month, as proclaimed by Governor Kempthorne. He described the Idaho Department of Water Resources (IDWR) organization, its origins, and that the Idaho Energy Division is a part of IDWR. Gerry also identified John Crockett as the Idaho Energy Division’s renewable energy specialist. He mentioned current Idaho Energy Division activities in support of DOE’s Industries of the Future program, Idaho’s PV4U efforts, and recently initiated efforts to support wind energy development. He then asked the group “How can we promote geothermal energy use in the state of Idaho?”

At this point, Gerry Galinato and Abby Arnold, RESOLVE, Inc., began facilitating an effort to acquire thoughts and ideas from the attendees on issues and potential strategies to address these issues. (See attached "Flip Chart Notes.") The composition of a steering committee for the Idaho Geothermal Energy Working Group was discussed. It was recognized that some constituencies were not represented by current attendees and that efforts were needed to identify individuals to represent these constituencies on the steering committee and/or the working group. Gerry Galinato indicated that the Idaho Energy Division would take the lead for the Idaho Geothermal Energy Working Group, although he mentioned the need for assistance from other organizations and individuals. He said that he would schedule a meeting for the steering committee in the near future (this meeting has since been tentatively scheduled for June 28th). The steering committee will initially work to complement the composition of the steering committee and the working group as well as develop plans for following up on the issues and strategies identified at this session.

The Idaho Geothermal Energy Working Group meeting adjourned at approximately 11:45AM.

Flip Chart Notes

June 1, 2001

Note: These notes summarize the Idaho Workshop discussion on Issues facing Geothermal Power Development in Idaho and Strategies for addressing the issues. The notes are not a verbatim summary of the discussion.

Agreement to Form Idaho Geothermal Energy Working Group

Meeting participants agreed to form a Geothermal Energy Working Group. The first step was to engage more parties from Idaho in this working group. Therefore, an adhoc Steering Committee agreed to plan a meeting in July, August, or September where many parties (see list below) would be asked to meet and agree on which issues and strategies discussed during the morning would become a priority for the Working Group.

Steering Committee Members include:

Gerry Galinato, Bob Neilson, Roy Mink, Steve Munson, Leo Ray, Janet Richardson, Curtis Framel (or Jeff James). Efforts should be made to identify someone from Senator Craig's staff and from the Office of the Governor to participate on the steering committee.

Parties to contact to see if they would be interested in participating in the Working Group, include (in no particular order):

- Peter Oberlinder, BLM
- State Department of Commerce – rural community program
- State Department of Agriculture
- USDA, rural economic development staff
- NRCS, Dan Ogle, Department of Ag.
- Farm Bureau Staff at local level
- Agriculture Extension Agents, Gary Fornshell, Twin Falls
- Utilities, cooperatives (Foster Electric – Joel)
- State legislators
- US legislator local offices
- Developers
- Aquaculture industry representatives
- Green house industry representatives
- OIT – Kevin Rafferty (541-885-1750); John Lawson, Gordon Bloomquist

Issues Facing Development of Geothermal Energy In Idaho

For Electric Power Markets

- Inability to get long-term contracts
- A long and difficult permitting process

- Federal leasing, KGRA's and the inability to process leases expeditiously
- Need for increased investment in technology, for example, need for imagery for seismic geophysics, including electromagnetic, to accurately detect geothermal fracture and rock strata

Direct Use Applications

- Need for training and education on geothermal direct use to change traditional crops to crop alternatives that thrive on geothermal applications, (such as aquaculture, including tropical fish, and green houses, flowers/seeds/dehydration)
- Need to fund gene pool research to address aquaculture genetic issues – including warm species genetic pool research
- Need a geothermal well at University of Idaho

For Both Energy Power and Direct Use Applications

- Lack of data on existing resources to lift moratoria on additional development
- Need for funds to conduct resource assessment
- Need to update existing data bases
- Not enough of a track record on geothermal production and therefore financing industry is skeptical and risk adverse

Heat Pumps

- Need more trained operators to install heat pump technology

Possible Strategies to Address Issues

Note: This list cover all the ideas suggested for how to address issues. Some parties at the meeting committed to move forward with a few strategies. However, in general the Working Group agreed that the meeting participants in the next Working Group meeting (planned for later in the summer) would discuss which of these strategies to pursue, who would be responsible, and by when would tasks be conducted to support the strategy.

- Propose and support legislation like renewable portfolio standard
- Promote geothermal power, generally
- Support production tax credit
- Support CO2 emissions trading programs
- Increase support for federal and state purchase of geothermal power
- Encourage BLM to conduct a KGRA lease sale soon! (work with BLM and USFWS)
- Encourage creative thinking about how to increase other applications of direct use (grant regarding how to sell hatchlings for full production, coordinate with USDA and NREL, encourage expanded native plant production and seed replanting programs)
- Encourage farmer involvement, education on all levels (use Georesource Center and faculty at University and State educational institutions)

- Work with cooperative extension and Idaho Water Resource Research Institute to develop an active and effective “Geothermal Extension” program
- Engage rural cooperative electric services, harness loan programs supporting electricity and transmission connections
- Conduct an education workshop
- Look into NRCS (USFS?) funds that might be able to use seeds for replacing fire-damaged rangelands: use greenhouses to grow seeds/plants
- Explore use of geothermal greenhouses to grow native plants/seeds (explore growth of certain plant species to “process” wastewater using aquaculture plants)
- Look for links with US agricultural policy, new farm bill, to support direct use applications in agriculture
- State could identify those geographical locations where agriculture production is most promising
- Explore broadening state law definition of
 - “agriculture and aquaculture”,
 - cascaded use (multiple use) of direct use applications
- Obtain more funds to update data base and lift moratoria
- Addressing financing constraints
 - Look for ways of reducing perception or risk to financing geothermal applications/use
- Conduct a study that documents economic development effects of geothermal production (rural economic development impacts of particular interest)
- Need guaranteed government assistance, government loans
- Need to educate financing community
- Need one-stop shopping in Idaho, so someone interested in use of geothermal energy for power or direct use application has an excellent resource of information on topics of interest
- Need comprehensive research program involving state, universities and federal institutions